THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS J. POLLOCK
and LINDA THORNE

Appeal No. 95-0448
Application 07/825,632[1]

HEARD: April 11, 1997

Before SCHAFER, Vice Chief Administrative Patent Judge, and GRON and WEIMAR, Administrative Patent Judges.

WEIMAR, Administrative Patent Judge.

DECISION ON APPEAL

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[1] Application for patent filed January 24, 1992. According to applicants, the application is a division of Application 07/517,551, filed April 24, 1990, which is a continuation of Application 07/180,945, filed April 12, 1988, now abandoned, which is a continuation-in-part of Application 07/038,302, filed April 14, 1987, now abandoned.

This is an appeal from the examiner's decision finally rejecting claims 28 and 5, which are all of the claims still pending in the application.

Claims 28 and 5 read as follows:

28. A method for producing xanthan gum comprising culturing a *Xanthomonas campestris* strain having a modification of exogenous genetic information capable of complementing an XgsG mutation, wherein said exogenous genetic information comprises exogenous DNA having a restriction map of a segment selected from the group consisting of c1H5, c1, c9H7, c82, c9, a fragment of c9H7 comprising c9e, a fragment of c82 comprising c9e, a fragment of c9 comprising c9e, and c9e, and is obtained from a *Xanthomonas campestris* strain.

5. The method of Claim 28, wherein said strain is capable of producing at least 1 gram of xanthan per liter of culture medium per hour.

The single reference relied upon by the examiner is:

Rogovin et al. (Rogovin), "Production of Polysaccharide with *Xanthomonas campestris*," Journal of Biochemical and Microbiological Technology and Engineering, Vol. III, No. 1, pages 51-63 (1961).

Claims 28 and 5 stand rejected under 35 U.S.C. § 103 over Rogovin. We reverse this rejection.

Background

Xanthan gum is an exopolysaccharide produced by bacteria, particularly by strains of *Xanthomonas campestris*. Commercially available strains of *Xanthomonas campestris* had been

used to produce xanthan gum prior to the effective filing date of this application. Xanthan gum is water-soluble and has a high

viscosity. Thus it is useful as a thickener in various food and cosmetic products. The claimed fermentation method is characterized by appellants as providing a higher yield of xanthan gum than had been known in the art prior to this invention. The method comprises culturing a strain of *Xanthomonas campestris*, wherein the strain has been altered via the addition of a specific exogenous DNA fragment. Prior to being altered by an added exogenous DNA fragment, the unmodified starting strain of the claims is a mutant incapable of xanthan production, referred to as an Xgs^- mutant. The source of the added DNA is a genome of *Xanthomonas campestris*. The claim identifies the added DNA by genomic restriction map segments which are carried on plasmids. Each of the

restriction map segments claimed as the added DNA is capable of restoring xanthan production to a mutant strain which has lost its ability to produce xanthan, i.e. an Xgs^- mutation. See page 9, line 1, through page 11, line 10, and Tables 1 and 2 together with their accompanying explanations from the examples of the specification.

Discussion

Claims 28 and 5 stand rejected under 35 U.S.C. § 103 over Rogovin. Rogovin discloses a fermentation method in which a strain of *Xanthomonas campestris* is cultured under conditions which are effective for the production of xanthan gum. The strain used in Rogovin was obtained from a depository. The rejection, as recited on page 4 of the Examiner's Answer states:

> It would have been obvious to one of ordinary skill in the art to have made xanthan gum by the methods of Rogovin et al. employing a xanthan gum-producing strain of Xanthomonas campestris. Novelty in the starting material and/or the final product does not necessarily lend patentability to a known process of making. The motivation to have used the methods of Rogovin et al. would have been that such

> culturing of Xanthomonas campestris is essentially the only way to produce xanthan gum, and said bacterium is the original source of xanthan gum.

Much of the discussion in the Brief and in the rebuttal section of the Examiner's Answer focuses on the "logic" of the decision in In re Durden, 763 F.2d 1406, 226 USPQ 359 (Fed. Cir. 1985) and its applicability to our determination of the obviousness of the claimed subject matter. The Brief and the Reply Brief also suggest that In re Kuehl, 475 F.2d 658, 177 USPQ 250 (CCPA 1973) and In re Mancy, 499 F.2d 1289, 182 USPQ 303 (CCPA 1974), respectively, are applicable to the questions of obviousness at issue.

A conclusion of obviousness under 35 U.S.C. § 103 is fact-determinative. Prior decisions in other cases with substantially distinct sets of facts do not control determinations of patentability under 35 U.S.C. § 103 in

subsequent applications. As stated in In re Brouwer, 77 F.3d 422, 425-26, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996):

> The Examiner erred by resting his *prima facie* case of obviousness on the purportedly controlling nature of our decision in *Durden* rather than on particularized findings, required by *Graham*, 383 U.S. at 17, regarding a set of one or more references that would make the claimed process obvious, an error the Board failed to correct. As we clearly indicated in *In re Dillon*, a recent in banc decision, "[w]hen any applicant properly presents and argues suitable method claims, they should be examined in light of all ... relevant factors, free from any presumed controlling effect of *Durden*" or any other precedent. 919 F.2d 688, 695, 16 USPQ2d 1897, 1903 (Fed. Cir. 1990) (in banc) *cert. denied*, 500 U.S. 904 (1991). *See also In re Ochiai*, 72 F.3d 1565, 1570, 37 USPQ2d 1127, 1132 (Fed. Cir. 1995) ("[T]here are not '*Durden* obviousness rejections' or '*Albertson* obviousness rejections,' but rather only section 103 obviousness rejections."). Having compared Brouwer's claims to the prior art of record, we reverse the rejection of claims 8 through 27 as an incorrect conclusion reached by an incorrect methodology.

Thus, we review the examiner's findings of fact and follow Graham v. John Deere, Co., 383 U.S. 1, 148 USPQ 459 (1966) to avoid reaching an incorrect conclusion by an incorrect methodology.

First we ascertain the scope and content of the prior art. In this record, the prior art is the teachings of the Rogovin reference and the art discussed in the specification of this application at pages 1 through 4, which is consistent with Rogovin. Rogovin teaches that strains of *Xanthomonas campestris* were known, as well as methods of culturing these strains to produce xanthan gum, prior to the filing date of this application.

In determining obviousness, all limitations in a claim must be given careful consideration to ascertain the differences between the claimed invention and the prior art. In this case, the only difference is a difference in the *Xanthomonas campestris* bacterial strain that is used in the culturing method. This distinction, however, cannot be ignored when discerning the invention as a whole for purposes of an analysis under 35 U.S.C. § 103.

Rogovin does not describe a bacterium which meets the limitations of claims 28 and 5, herein. Rogovin teaches a method of culturing a strain of *Xanthomonas campestris* that was obtained from the ARS Culture Collection at the U.S.D.A.'s

Northern Regional Research Laboratory in Peoria, Illinois. See the Summary and the footnote on the first page of Rogovin. The strain is designated as *Xanthomonas campestris* NRRL B-1459. The reference is silent as to the genetic history of this particular strain. We learn from Rogovin that the strain obtained from the depository is an Xgs^+ strain, which successfully produces xanthan gum. There is no basis upon which to find that this strain was an Xgs^- mutant which has been complemented by a genomic restriction segment selected from the group of genomic segments set forth in claim 28.

The examiner appears to accept the novelty of the bacterium used in the claimed fermentation method. The rejection states at page 4 of the Examiner's Answer:

> Novelty in the starting material and/or the final product does not necessarily lend patentability to a known process of making.

In response to appellants' arguments on expectation of success and unpredictability with respect to xanthan gum

production from mutant bacteria, the examiner refers to applicants' construction of the xanthan-producing mutants in accordance with the claims. For example, the following appears in the Examiner's Answer, page 8, lines 10-22:

> In the present case, the property in question is the presence in the Xanthomonas campestris strain of inserted copies of the DNA which directs xanthan gum synthesis, combined with the fact that the wild type parent strain could produce xanthan gum. Appellants further argue that it could not have been known that the genetic modification did not eliminate the ability of the strain to produce xanthan gum. However . . . one of ordinary skill would not have had the expectation that said modification would have eliminated xanthan gum production. To the contrary, one of ordinary skill would have expected higher production due to the rationale in the art with which the recited strain was designed.

Hindsight shall not form the basis of a conclusion of obviousness under 35 U.S.C. § 103. "Both the suggestion and the expectation of success must be founded in the prior art, not in applicant's disclosure." In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). To the extent that the examiner's comments relate to the obviousness of the strains required in claims 28 and 5, no supporting

evidence is provided beyond the instant disclosure. The prior art of record does not show knowledge of the critical feature of the invention; i.e., an addition of the DNA segments which are responsible for

re-establishing xanthan gum production in an Xgs^- mutant. As the Federal circuit stated in Sensonics, Inc. v. Aerosonic Corp.,

81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996):

> To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction - an illogical and inappropriate process by which to determine
>
> patentability . . . The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made. [citations omitted]

Although the level of skill in this art is high, we find that the person of ordinary skill in this art would not have been led by Rogovin's teachings to resolve the differences between the prior art and the claimed invention. Without a

suggestion in the prior art leading to the recombinantly complemented Xgs$^-$ mutants required in the claimed method, a *prima facie* case of obviousness has not been established.

We are aware that parent application, S.N. 07/517,551, of which the instant application is a divisional, has issued as U.S. Patent 5,279,961. Claim 1 thereof is drawn to a specific bacterial culture referred to as *Xanthomonas campestris* strain X59-1232. This strain falls within the genus of strains required by claim 28 here on appeal. See U.S. Patent 5,279,961 at columns 19 and 20 (the Results section of Example 5) together with the relevant information from Example 1 of the patent. *Xanthomonas campestris* strain X59-1232 is an Xgs$^-$ mutant which has been modified by a c1 restriction fragment from *Xanthomonas campestris*. We presume from the subject matter claimed in this

patent that a species within the scope of claim 28 herein is both novel and nonobvious. We have no basis on this record to conclude that the use of the species claimed in U.S. Patent 5,279,961 to produce xanthan gum would otherwise have been

obvious to a person having ordinary skill in the prior art at the time appellants' invention was made.

Conclusion

We reverse the rejection of claims 28 and 5 under 35 U.S.C. § 103 .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED

RICHARD E. SCHAFER, Vice Chief Administrative Patent Judge	)	
TEDDY S. GRON Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES

ELIZABETH C. WEIMAR)

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